

Notice of Allowability

Application No.

10/766,969

Examiner

Fritz Alphonse

Applicant(s)

ICHIHARA ET AL.

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 5/27/2008.
2. ☒ The allowed claim(s) is/are 1,3-5,7-9,11-13,15-17,19-24.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 1,2
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Jacques Louis-Jacques
JACQUES LOUIS-JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph P. Fox on 5/27/2008.

Figures:

Please add the label "Prior Art" to figure 1.

Allowable Subject Matter

2. After further search and thorough examination of the present application and in view of the prior art of record, claims 1, 3-5, 7-9, 11-13, 15-17, 19-24 are found to be in condition for allowance.

Reason for Allowance

3. The following is an examiner's statement of reasons for allowance: The present invention relates to method and apparatus for reproducing information by performing an error correction decoding of a signal sequence read from a recording medium.

To achieve this inventive goal, independent claim 1 identifies the distinct features "an external code decoder that calculates, based on the external information, a second reliability information with respect to a maximum a posteriori decoding sequence to output the maximum a posteriori decoding sequence based on the second reliability information calculated, wherein

the decoding unit performs maximum a posteriori decoding of the signal sequence by repetitively using the internal code decoder and the external code decoder until a repetition end condition is satisfied.”

Independent claim 5 identifies the distinct features “a decoding unit that performs maximum likelihood decoding of the signal sequence upon the determining unit determining that the error is not correctable, wherein the decoding unit includes a Viterbi decoding unit that outputs a Viterbi decoding sequence by performing maximum likelihood decoding based on Viterbi decoding of the signal sequence; and a noise estimate post processing unit that creates a filter passing sequence by filtering the Viterbi decoding sequence based on a channel signal characteristic and a channel noise characteristic, and that performs an error correction of the Viterbi decoding sequence by using the filter passing sequence and the signal sequence. ”

Independent claim 9 identifies the distinct features “the internal code decoder calculates a first reliability information and an external information, and the external code decoder calculates, based on the external information, a second reliability information with respect to a maximum a posteriori decoding sequence to output the maximum a posteriori decoding sequence based on the second reliability information calculated.”

Independent claim 13 identifies the distinct features “performing maximum likelihood decoding of a signal sequence read from the recording medium upon determining that the error is not correctable; wherein the performing includes outputting a Viterbi decoding sequence by performing maximum likelihood decoding based on Viterbi decoding of the signal sequence...”

Independent claim 17 identifies the distinct features “a noise estimate post processing unit that creates a filter passing sequence by filtering the Viterbi decoding sequence based on a

channel signal characteristic and a channel noise characteristic, and that performs an error correction of the Viterbi decoding sequence by using the filter passing sequence and the signal sequence.”

4. The first cited reference, Boyer (US Pat. No. 7,055,081) discloses a system and method for multi-channel decoding error correction including a multiple decoding units for detecting error and an inner ECC decoder. The second cited reference Ichihara (US Pat. No. 7,031,090) discloses an information recording and reproducing apparatus including an iterative decoding method such as MAP (Maximum A posteriori Probability) decoding for performing iterative decoding.

However, the features disclosed in the instant application (No. 10/766,969) are neither anticipated nor render obvious by the prior art of record.

These limitations, in conjunction with all other limitations of the base claims were not shown by, would not have been obvious over, would not have been fairly suggested by the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for allowance.”

Conclusion

5. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

Art Unit: 2112

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques, can be reached at (571) 272-6962.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3824.

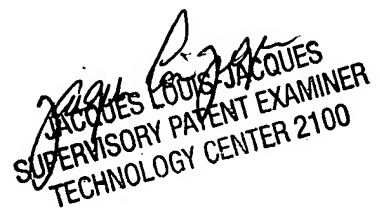
Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fritz Alphonse

Art Unit 2112

May 28, 2008



JACQUES LOUIS-JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100